

NEW DESCRIPTION

ON THE GENUS *KANAKARAJIELLA* SUNDARARAJ & DAVID
(HEMIPTERA: ALEYRODIDAE) WITH DESCRIPTION OF A NEW SPECIESR. SUNDARARAJ^{1,2} AND R. PUSHPA^{1,3}¹Institute of Wood Science & Technology, Mallechwaram, Bengaluru 560 003, Karnataka, India.²Email: rsundararaj@icfre.org³Email: pushpa_suderson@yahoo.com

The Whitefly genus *Kanakarajiella* Sundararaj & David is reviewed and is considered as a valid genus. A new species *Kanakarajiella rotunda* breeding on *Syzygium* sp. in Kumarapuram, Tamil Nadu, India, is described and illustrated. A key to the species of the genus *Kanakarajiella* is also given

Key words: Whiteflies, Hemiptera, *Kanakarajiella*

INTRODUCTION

David and Sundararaj (1993) established the genus *Kanakarajiella* with *Dialeurodes vulgaris* Singh as the type species and included three known species of *Dialeurodes*, namely *D. bassiae* David & Subramaniam, *D. cardamomi* David & Subramaniam and *D. pallida* Singh under this genus. Jensen (1999) analyzed the phylogenetic relationships within a large sample of the world's diversity of *Dialeurodes* Cockerell, including *K. vulgaris* and concluded that only the type species should remain under *Kanakarajiella* and placed the remaining three species under the genus *Singhiella* Sampson. Meganathan and David (1994) described one new species under the genus *Kanakarajiella*. Martin and Mound (2007) in their catalogue placed all the species of *Dialeuronomada*, *Gigaleurodes*, *Lankaleurodes*, *Kanakarajiella*, *Rabdostigma*, *Shanthinia* under *Dialeurodes* with the note that future studies may reveal some or all of these to be valid genera. A study of the two species, so far, described under *Kanakarajiella* and description of a new species here justified the need to reinstate the generic status of *Kanakarajiella* as they differ distinctly from the species of *Dialeurodes* Cockerell by the absence of stipples or granules on the thoracic and the caudal tracheal folds, absence of teeth or fimbriae in the thoracic and caudal tracheal pores, and by the absence of comb of teeth in vasiform orifice.

Genus *Kanakarajiella* David & Sundararaj, 1993 Stat. Rev.

Type species: *Dialeurodes vulgaris* Singh, 1931. *Mem. Rep. Dept. Agric. India, Ent. Ser.*, 12(1): 33-34; by original designation.

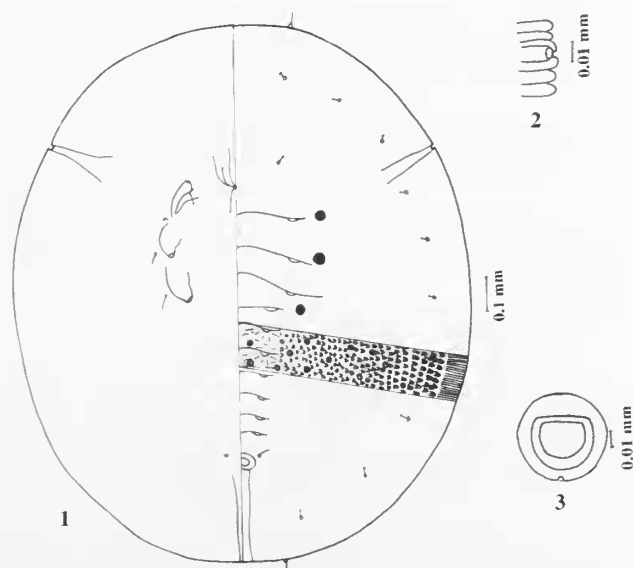
Diagnosis: Puparium white to light brown; elliptical to oval; margin smooth or crenulate; submargin not separated from dorsal disc; subdorsum/submargin with row of setae; pores well-defined without teeth or fimbriae; folds indicated

without stipples; furrows distinct; longitudinal moulting suture reaching margin and transverse moulting suture reaching submargin. Vasiform orifice subcordate to circular, without comb of teeth; operculum large filling orifice, obscuring lingula.

Remarks: This genus differs from that of *Dialeurodes* Cockerell by the absence of stipples or granules on the thoracic and the caudal tracheal folds, absence of teeth or fimbriae in the thoracic and caudal tracheal pores and by the absence of comb of teeth in vasiform orifice.

1. *Kanakarajiella rotunda* sp. nov. (Figs 1-3)**Description**

Puparium: White, without secretion of wax;

Figs 1-3: *Kanakarajiella rotunda* sp. nov.

1. Puparium, 2. Margin at thoracic tracheal pore region,
3. Vasiform orifice

subcircular, broadest at transverse moulting suture, 1.90-1.96 mm long, 1.64-1.66 mm wide. Margin regularly crenulate, 15-17 crenulations in 0.1 mm; thoracic tracheal pores distinct without inner teeth and caudal tracheal pore indicated by a slight depression. Anterior marginal setae 16 µm and posterior marginal setae 20 µm long.

Dorsum: Submargin striated. Subdorsum with dense microtubercles of varying size and shape, geminate pores disposed throughout dorsum. Median area with small broken transverse ridges. Pockets well-developed on all segmental sutures, lateral depressions on all segments. Longitudinal moulting suture reaching margin, transverse moulting suture reaching submedian. Three pairs of submedian tubercles – two pairs on cephalothorax (one pair each on pro- and mesothorax) and one pair on I abdominal segment. Thoracic and caudal tracheal furrows distinct, without ornamentation or sculpturing or stipples. Pores and porettes not discernible.

Chaetotaxy: Three pairs of setae – cephalic setae 5 µm long, eighth abdominal setae cephalolaterad of vasiform orifice, 10 µm long and caudal setae 8 µm long. First abdominal setae absent. A row of ten pairs of capitate setae – five pairs each on cephalothorax and abdomen, each 5 µm long.

Vasiform orifice: Subcircular, wider than long, 46 µm long, 50 µm wide; operculum subcordate, 24-26 µm long, 40-42 µm wide, filling orifice and obscuring lingua.

Venter: A pair of ventral abdominal setae 20 µm long, 60 µm apart. Thoracic and caudal tracheal folds distinct without stipples. Antennae reaching base of prothoracic legs. A pair of setae at the base of meso- and metathoracic legs, 10 µm long.

Host: *Syzygium* sp.

Material Examined: Holotype: One puparium, on slide from *Syzygium* sp., Coll. R. Pushpa, 24.v.2007, deposited in the collections of National Forest Insect Collection, Forest Research Institute, Dehradun, India (NFIC-FRI # 21871).

Paratypes: 2 puparia, data as for holotype, one each deposited in National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, India (IARI), and in Institute of Wood Science & Technology, Bangalore, India (IWST).

Type locality: INDIA: Tamil Nadu: Kumarapuram.

Remarks: The puparia were found in groups on the undersurface of leaves. This species resembles *Kanakarajiella vulgaris* (Singh) in having striated margin, distinct pores without inner teeth and thoracic and caudal tracheal folds without stipples, but differs from it in the puparium shape, having three pairs of submedian tubercles, ten pairs of subdorsal capitate setae and by the absence of the first abdominal setae and median tubercles on abdominal segments.

Etymology: The species name alludes to the circular body shape of the species.

2. *Kanakarajiella turpiniae* Meganathan & David Stat. Rev.

Kanakarajiella turpiniae Meganathan and David, 1994. *FIPPAT Entomology Series*, 5: 40.

Dialeurodes turpiniae: Martin and Mound, 2007. *Zootaxa*, 1492: 31.

Material Examined: Holotype: puparium, INDIA: Kerala: Valiyamullumala (Silent Valley), on *Turpinia malabarica*, 2.ii.1991, Meganathan.

Host: *Turpinia malabarica* (Meganathan and David, 1994).

Distribution: INDIA: Kerala: Valiyamullumala (Meganathan and David 1994).

Remarks: This species is rather distinct from the other species of *Kanakarajiella* by the absence of submarginal/subdorsal setae and tubercles on dorsum and caudal furrow with sculptures.

3. *Kanakarajiella vulgaris* (Singh) Stat. Rev.

Dialeurodes vulgaris Singh, 1931. *Mem. Rep. Dept. Agric. India, Ent. Ser.*, 12: 33-34. Martin and Mound, 2007. *Zootaxa*, 1492: 31.

Kanakarajiella vulgaris (Singh) David and Sundararaj, 1993. *J. ent. Res.*, 17: 233.

Material Examined: INDIA: Kerala: Kottayam, 9 puparia, on *Solanum seaforthianum*, 12.vii.2006, R. Pushpa; Karadipara (Nelliampathy), 1 puparium, on *Euonymus indicus*, 23.x.2006, R. Sundararaj; Tamil Nadu: Kumarapuram, 1 puparium, on *Phyllanthus reticulatus*, 24.v.2007, R. Pushpa; Mondaikadu, 2 puparia on *Randia malabarica*, 5.viii.1987, R. Sundararaj.

Hosts: *Jasminum sambac*, *Syzygium cumini* (Singh 1931); *Bidens pilosa*, *Erythrina lithosperms*, *Syzygium jambos* (Venkataramaiah 1971); *Canthium dicoccum*, *Coffea arabica*, *C. excelsa*, *C. robusta*, *Coffea* sp., *Randia malabarica* (David and Sundararaj 1993); *Litsea floribunda*, *Mappia foetida* (Meganathan and David 1994); *Tabernaemontana heyneyana*, *Jasminum* sp., *Litsea* sp., (Dubey and Ko 2008); *Euonymus indicus*, *Phyllanthus reticulatus*, *Solanum seaforthianum* (new host records).

Distribution: INDIA: Bihar (Pusa) (Singh 1931); Karnataka: Chikmagalur; Kerala: Silent valley (Meganathan and David 1994); Tamil Nadu: Munchirai, Mondaikadu (David and Sundararaj 1993); Karnataka: Honnawar, Kumargiri; Kerala: Waynad Wildlife Sanctuary (Dubey 2003).

NEW DESCRIPTION

Remarks: The puparium of this species is characterised by the presence of about 10 pairs of pointed submarginal setae and abdominal segments with median tubercles and by the absence of submedian tubercles.

KEY TO THE INDIAN SPECIES OF *KANAKARAJIELLA*

1. Submarginal/subdorsal setae present; dorsum with tubercles; caudal furrow without sculptures 2
- Submarginal/subdorsal setae absent; dorsum without tubercles; caudal furrow with sculptures
..... *turpiniae* Meganathan & David
2. Cephalothorax with two pairs and I abdominal segment with a pair of submedian tubercles; abdominal segments without median tubercles; subdorsum with ten pairs of capitate setae;

- first abdominal setae absent *rotunda* sp. nov.
- Cephalothorax and I abdominal segment without submedian tubercles; abdominal segments with median tubercles; submargin with a row of about 10 pairs of pointed setae; first abdominal setae present
..... *vulgaris* (Singh)

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